

**TITLE OF THE INVENTION**

**SURFBOARD FIN BOX WITH DETACHABLE, LEASHED FIN**

**FIELD OF THE INVENTION**

This invention relates to surfboard fins and fin boxes, where  
5 multiple fins at the aft end of the board are used for directional  
control and stability.

**BACKGROUND OF THE INVENTION**

Typical surfboard fin systems consist of a fin box inserted into  
the surface of the surfboard at its aft end on the underside of the  
10 board plus a surfboard fin that is inserted into the box and held  
fixedly. When a fin breaks or is damaged, the fin can be removed  
from the box by means of unscrewing screws or unloosening some  
other attachment device, removing the broken fin, and replacing it  
with a new one. The same attachment devices are then re-tightened  
15 or reattached and the board can be used once again.

United States Patent No. 5,133,681 by Lobe teaches a sailboard fin system with a leash connecting the fin to the fin box. However, the sailboard fin box is a through-the-board system unlike surfboard systems and the fin attachment mechanism is designed to break 5 selectively to prevent damage to the fin from striking underwater objects. US Patent No. 5,493,989 teaches a system for permitting sailboard or surfboard fin depth adjustment.

None of the prior art devices posses the unique capabilities of the present invention, namely adjustable attachment devices that 10 allow a fin to be re-attached while the surfboard rider is in the water or at the beach and a box that does not require a through-the-board anchoring. The attachment devices can be adjusted to hold the fin tightly enough to provide board control for the rider but loosely enough that the fin will pop out and remain undamaged when 15 striking an underwater obstacle.

## BRIEF SUMMARY OF THE INVENTION

The present invention consists of a new design for a surfboard fin box and fin that allows the fin to be connected to the box by means of a leash. The present invention also possesses adjustable attachment devices in the box that permit the surfboard rider to insert the fin into the box and control the amount of retentive friction exerted on the fin by the box. The adjustable attachment devices will release the fin when an underwater obstruction is encountered and the leash will retain the fin connected to the fin box, and thus to the board. A surfer can re-attach the fin to the box by use of a simple attachment device adjustment tool, such as a hex wrench, even in the water. None of the components of the box or the fin system are destroyed to permit the fin to break loose, so the system can be re-used without purchasing and replacing parts.

It is an object of this invention to provide a surfboard box and fin system that is easy to use and maintain.

It is a further object of this invention to provide a fin box that possesses easily adjustable attachment device for the fin.

It is a further object of this invention to provide a fin that allows the storage of the leash directly under the fin.

5 It is a further object of this invention to make the shape of the fin end that is inserted in the box such that the fin will release easily when struck from front or back, without any component of the fin or the box breaking.

It is a further object of this invention to permit the user to  
10 make his own repairs of the fin by reattaching the fin to the box at sea or on the beach.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The construction and operation of the invention can be readily appreciated from inspection of the drawings that accompany this  
15 application, combined with the detailed specification to follow.

Figure 1 is a perspective drawing of the preferred embodiment of the invention as installed on a surfboard.

Figure 2 is a side view of the preferred embodiment of the invention showing the fin detached from the box.

5       Figure 3 is a top view of the box.

Figure 4 is front view of the invention with the fin detached from the box.

Figure 5 is a cross section view showing the fin inserted into the box.

10       Figure 6 is a side view showing the fin inserted into the box with an alternative shape for the fin base.

#### DETAILED DESCRIPTION OF THE INVENTION

The operation of the invention can be appreciated by looking at the preferred embodiment of the invention as shown in Fig. 1.

15       The invention consists of a fin box<sup>101</sup> that is fixedly inserted into a surfboard<sup>100</sup>, and a leash<sup>102</sup> attaching a fin<sup>103</sup> to the fin box<sup>101</sup>. In

Fig. 2, the leash attachment position<sup>104</sup> and the plurality of fin attachment points<sup>105</sup> are shown. In Fig. 5, the inserted fin<sup>103</sup> is shown, with the leash<sup>102</sup> stowed under the fin<sup>103</sup> in the fin cutout<sup>106</sup>. Note that the inserted end<sup>109</sup> of the fin<sup>103</sup> possesses 5 two bevel cuts<sup>106</sup> that permit the fin<sup>103</sup> to release easily from the fin box<sup>101</sup>.

In Fig. 3, the fin attachment points<sup>105</sup> are shown alongside the fin box slot<sup>107</sup>, where the fin<sup>103</sup> is inserted. In Fig. 4, it can be seen that the fin attachment points<sup>105</sup> are slanted to the perpendicular 10 so that the fin attachment means<sup>108</sup> can be pressed against the side of the fin<sup>103</sup> with adjustment pressure. In the preferred embodiment, the fin attachment means<sup>108</sup> are a pair of set screws that can be tightened by a standard hex wrench.

Fig. 6 is an alternative embodiment of the invention, where the 15 inserted end<sup>109</sup> of the fin<sup>103</sup> possesses a rounded shape<sup>110</sup>, unlike the bevel cuts<sup>106</sup> of the preferred embodiment. This shape is

designed to fit the curvature of the box<sup>101</sup> as shown. The rounded shape fits more snugly into the box<sup>101</sup> but still releases easily when the fin<sup>103</sup> is struck from either front or back. The fin box<sup>101</sup> does not move out of the surfboard<sup>100</sup> when the fin<sup>103</sup> is struck.

5 While the foregoing describes a preferred embodiment and several alternative embodiments, variation on this design and equivalent designs may be resorted to in the scope and spirit of the claimed invention.

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